ABSTRACT OF THE DISCLOSURE

A portable, self-contained, electronic radioscopic imaging system uses a pulsed X-ray source, a remote X-ray sensor, and a self-contained, display and controller unit to produce, store, and/or display digital radioscopic images of an object under investigation in low voltage imaging environments such as medical applications including mammography and tissue imaging, and industrial radiography of low-density structures, or the like. The radiographic system uses an X-ray converter screen for converting impinging X-ray radiation to visible light, and thus each point impinged on the screen by X-ray radiation scintillates visible light emissions diverging from the screen. An image sensor, i.e., a CCD camera, is configured to sense the visible light from the screen. An aspheric objective lens operable with the CCD camera spatially senses visible light within a collection cone directed outwardly from the image sensor. An emission modification lens layer, e.g., a prismatic brightness enhancement film or a sprayed on transmissive layer, through which the visible light emitted from the screen is transmitted is superposed with the screen and positioned in an optical path between the aspheric lens and the screen for generally focusing the diverging visible light as a restricted cone of illumination propagating outwardly from each point impinged on the screen to increase the fraction of light directed into the collection cone of the first lens and reducing the amount of scattered visible light from the screen.

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